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WATER RIGHTS TO THE JORDAN AND ITS TRIBUTARIES

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Division of Research for Near East and Africa

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I. GENESIS OF THE DIVISION OF
HEADWATERS AMONG LEBANON, SYRIA, AND PALESTINE

The original agreement between France and Britain concerning the boundary between Syria (which then included Lebanon) and Palestine is in the Anglo-French section of the Sykes-Picot Agreement of May 16, 1916.¹ Here the governing consideration on Britain's part was strategic: to insure communications by rail and road from Haifa and Acre to Baghdad.

Whereas Britain's interest in drawing with France the northern boundary of Palestine was primarily strategic, the interest of the Zionists was entirely economic and aimed at securing control of the Litani River and the other comparatively rich water resources of southern Lebanon for use in irrigation and hydroelectric development. As proposed in the "Statement of the Zionist Organization regarding Palestine," presented to the Council of Ten of the Paris Peace Conference on February 27, 1919, the boundary of Palestine would have run from just south of Sidon due east to Jisr al-Qara'un (on the Litani), then southeast to the present Rosh Pinna - Damascus road and east to the vicinity of the Hijaz Railway.

The present frontiers of Palestine as delineated by the Anglo-French agreements of December 23, 1920 and

¹. Text in G. Antonius, The Arab Awakening, (London, 1945), pp. 429-430.

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February 3, 1922 followed closely the line of the secret understandings of 1914-18 typified by the Sykes-Picot Agreement.¹ The defeat of the Zionist aims was due to the opposition of the French, who were opposed to giving more than anticipated in the Sykes-Picot Agreement and who opposed the Zionist desire to gain control of the upper Jordan, the Yarmuk and the Litani, the last-named of which was a main source of water in the Biqa' (the valley between the ranges of Lebanon and Anti-Lebanon).² However, judging from statements made from time to time by various Zionists and Israelis, Israel has not given up hope of acquiring some of the southern Lebanese waters, particularly those of the Litani. The Litani is not, of course, a part of the Jordan system.

Nevertheless, the various Anglo-French agreements on the subject of the borders between Syria (including Lebanon) and Palestine show that full consideration was given to the problem of the utilization by Palestine of waters originating in the French-mandated area but flowing into Palestine. The Anglo-French Agreement of December 23, 1920 provided that experts should examine the question of the employment of the waters of the upper Jordan and the Yarmuk and

1. H.V.W. Temperley, A History of the Peace Conference of Paris, Vol. VI, pp. 1-22.

2. Oriente Moderno, Vol. I, p. 269.

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their tributaries, after the needs of the French-mandated territories were satisfied, for the production of hydro-electric power and for irrigation in Palestine. The French Government was to give its representatives "the most liberal instructions" for the employment of this water in Palestine. The agreement further provided that the Palestine Administration should pay the cost of all works and installations constructed on French-mandated territory for the benefit of Palestine.

The protection of the water rights of the inhabitants of the French-mandated territory is covered in the Anglo-French Agreement of February 3, 1922 in the statement that "any existing rights over the use of the waters of the Jordan by the inhabitants of Syria [including Lebanon] shall be maintained unimpaired." This was expanded in a further Anglo-French Agreement of February 2, 1926 (Article III) as follows: "All rights deriving from local laws and customs concerning the use of waters, streams, canals and lakes for purposes of irrigation or supply of water shall remain as at present. The same rule shall apply to village rights over communal properties."

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II. THE WATER SOURCES OF THE UPPER JORDAN

A. Description

As noted above, the boundaries of the French and the British mandates were originally drawn in such manner as to include nearly all of the sources of the Jordan headwaters within the boundaries of Palestine. The only notable exceptions are the two rivers called the Hasbani and the Banyas, both of which are perennial. The Hasbani rises in springs which dot the western foothills of Mt. Hermon just west of Hasbaya, in Lebanon. The Banyas has its source in a spring at the town of Banyas, which is barely over the Palestine border in Syria.

B. Volume

The flow of the Hasbani measured at Jisr al-Dilba, which is slightly over 2 kilometers inside the Palestine border, has been computed at an annual average of about 5 cubic meters per second in an average year. The Hays report¹ estimates the average annual flow of the Hasbani at the proposed dam site at Ibl al-Saqi in Lebanon at about 130,000,000 cubic meters. If this estimate is correct, it would indicate that the Hasbani picks up less than one cubic meter a second in volume between Ibl al-Saqi and

1. James B. Hays, Proposed Over-All Irrigation and Hydro-Electric Development in Palestine, Preliminary Report (New York, December 1945), p. 90.

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Jisr al-Dilba. The average annual flow of the Banyas at a point 1 1/4 kilometers south of Dan or about 4 1/4 kilometers from the point of the river's entry into Palestine, is also about 5 cubic meters per second. The Banyas probably picks up a greater percentage of its water in Palestine, since it is joined by a stream called the 'Asal a short distance above the point at which the gauging of the Banyas is presumed to have been made.

C. Effect on the Jordan.

Since the average annual flow of the Jordan at Jisr Banat Ya'qub, about 3 1/2 kilometers south of Lake Huleh, is only some 20 cubic meters per second, it can be seen that if the Jordan were deprived of the 4 cubic meters of the Hasbani as it comes from Lebanon and, say, the 3 cubic meters of the Banyas as it comes from Syria, it would seriously reduce the flow of the Jordan to an annual average of about 13 cubic meters per second. Therefore, the British-French agreements appear to have been aimed at preventing the drawing off of such waters in the French-mandated area to a degree which would seriously affect the flow of the Jordan in Palestine while preserving to the French-mandated area customary rights to and usage of water originating in its territory.

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The size of these streams may be gauged from the fact that the average discharge of the Yarmuk at Wadi Khalid (below the point where the Nahr al-Ruqqad joins the Yarmuk) is only 9.5 cubic meters per second. This is based on readings made for the years 1930-33. Between Wadi Khalid and the Yarmuk reservoir the river picks up a considerable increment, for the average flow of the Yarmuk into the Tel Or reservoir measured over the years 1933-43 shows a volume of 14.8 cubic meters per second.

C. Effect on the Jordan

The volume of the Jordan measured immediately below the Palestine Electric Company's power station at Jisr al-Majami' over the years 1934-43 equals an average annual flow of 32 cubic meters per second. Since this includes the waters of the Yarmuk, half of which are presumably claimable by the Kingdom of Jordan, the amount available to Palestine would be 24.6 cubic meters per second at this point.

IV. WATERS (APART FROM THOSE OF THE JORDAN AND
THE YARMUK) FROM ISRAELI AND JORDANIAN TERRITORY
AVAILABLE FOR IRRIGATION IN ARAB PALESTINE
(KINGDOM OF JORDAN)

The Hays report¹ estimates that the water resources of the lower Jordan, not counting the input of the upper Jordan

1. PP. 144-46.

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and the Yarmuk, at the site of a proposed Jordan dam at Wadi Malih about 15 kilometers south of Baysan, are as follows:

The Wadis of al-Arab, Ziqlab, Jurn, and Yabis (from the Kingdom of Jordan on the east)	34,000,000 cubic meters per year
Baysan-'Ein Harod spring surplus (from Israel)	53,000,000 cubic meters per year
Baysan 50% saline springs (from Israel)	31,500,000 cubic meters per year
Baysan run-off (from Israel)	31,200,000 cubic meters per year
North of Baysan-'Ein Harod run-off (from Israel)	15,000,000 cubic meters per year
Return flow from irrigation (from Israel and Kingdom of Jordan)	27,000,000 cubic meters per year
 Total	 191,700,000 cubic meters per year

Thus out of the 191,700,000 cubic meters a year contributed in this area, Hays estimates that less than 61,000,000 cubic meters a year come from outside of what is now Israeli territory. Taking Hays' figure and deducting with him 26,700,000 cubic meters a year for evaporation loss, it is concluded that a balance of 165,000,000 cubic meters a year at least should be available from the proposed dam at Wadi Malih, about 15 kilometers south of Baysan, for the irrigation of 110,000 dunums (27,500 acres) of land along the foothills west of Jericho. This, along with other local

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water resources, would bring the total of land to be irrigated in this area to 170,000 dunums (42,500 acres) out of a total estimated irrigable area of 200,000 dunums or 50,000 acres (Hays, p. 140).

If these waters were used as described above, the Jordan River below the proposed dam at Wadi Malih would be almost entirely dependent on the flow of the Wadis Kufrinjah, Rajib, al-Zarqa, Nimrin, and Abu Gharabah coming in from the Kingdom of Jordan on the east. The combined annual ground water flow of these streams is about 84,000,000 cubic meters, but since a considerable amount of this is used for irrigation, only a part of this total would escape to the Jordan.

V. PRESENT PROJECTS EMPLOYING WATERS
OF JORDAN TRIBUTARIES OUTSIDE OF PALESTINE

A. The Litani

Although the Litani is not a tributary of the Jordan, it is discussed here because it has often been mentioned as an objective of the Israelis in acquiring additional territory in southern Lebanon. The waters of the Litani are essential to Lebanon not only for the extension of irrigation in the southern Biga' but for the implementation of the Qasimiyah irrigation project (recommended both by the American Agricultural Mission of 1943 and by Sir Alexander Gibb), designed to irrigate some 4,500 hectares (11,120 acres)

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along the Mediterranean coastal plain of Lebanon from a point south of Sidon to a point south of Tyre. Any tapping of the Litani waters for the benefit of Palestine would nullify this project, since the flow of the Qasimiyah (as the lower course of the Litani is called) is only 9 cubic meters per second and present irrigation plans alone call for the utilization of 5 cubic meters per second of this volume.

B. The Hasbani

There are apparently no local projects under way or contemplated for the use of the Hasbani waters either in Syria or in Lebanon for purposes of local irrigation or power production. However, one of the most important features of the Hays project calls for the creation of a dam at Ibl al-Saqi in Lebanon, which would run a small power plant, presumably for the use of the installation only. The primary purpose of the dam would be to store water for delivery through a canal at the maximum rate of 10 cubic meters per second to a proposed power plant and irrigation canal at Tel Hai in Israel. After being used for generating power entirely for use in Israel, the waters would join the main irrigation canal running from Banyas and Tall al-Qadi to Sahl al-Battawf and the Plain of Esdraelon. The sole benefit accruing to Lebanon and Syria under this arrangement

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would be that the dam on the Hasbani would eliminate in some degree the flooding of the Hasbani Valley which occurs during certain times of the year. The building of the dam would require the relocation of the highway from Metulla to Damascus and the resettlement of a number of families.

C. The Banyas

The Hays report proposes a canal taking off from the Banyas River, running west to Tall al-Qadi and thence for a short distance across Syria and Lebanon back into Palestine, whence it would run to Tel Hai as mentioned above. Although this canal would not deprive Syria of any water, the fact that it is to cross both Syrian (2 kilometers) and Lebanese (1/4 kilometers) territory would require some kind of an agreement among the parties concerned.

D. The Yarmuk and Its Tributaries

The Yarmuk itself is not easily exploitable for irrigation in Syria and any part of the Kingdom of Jordan but the western edge because of the depth and steepness of its bed. Little or no utilization of its tributaries is envisaged in the Kingdom of Jordan. In Syria, the only scheme projected or under way is the Muzayrib project, by which it is proposed to irrigate some 3,000 hectares (7,413 acres) with about 1.8 cubic meters per second of water taken from

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Lake Muzayrib and two springs in the area. This scheme would thus not be affected by any draining-off of the waters of the Yarmuk proper, though it would affect the flow into the Yarmuk.

1. The Yarmuk Canal. The only important project for the use of Yarmuk waters for irrigation in the Kingdom of Jordan is that which was prepared originally by M.G. Ionides in 1939 in his Report on the Water Resources of Transjordan.¹ Ionides stated that if a canal from the Yarmuk could be designed with a discharge of 6.5 cubic meters per second (204,984,000 cubic meters per year) it could irrigate an area of 117,000 dunums (29,250 acres) along the valley terrace on the eastern side of the Jordan as far south as the Wadi Zarqa. The waters of the Wadi Zarqa could then be diverted to its south side only and an additional 33,000 dunums (8,250 acres) irrigated, making a total of 150,000 dunums (37,500 acres) irrigated in a continuous strip. Ionides was inclined at the time he wrote his report to dismiss this project, however, because of its cost, which at 1939 rates would have been about £5 or £6 per dunum (1/4 acre) commanded, or a total of £643,500. An alternative and cheaper scheme proposed by him under the then existing conditions and financial considerations, was the

1. PP. 255 ff. and 345 ff.

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construction of a canal from the Yarmuk with an offtake of 1.76 cubic meters per second (55,503,360 cubic meters per year). This canal would irrigate an area of 40,700 dunums (10,175 acres) in the same area. The total cost of this scheme was estimated at 1939 prices to be £70,000.

E. Projects Involving the Jordan River.

1. In the report referred to above (pp.257-259) M.G. Ionides suggested that an area estimated at 300,000 dunums (75,000 acres) could be irrigated on the eastern side of the Jordan Valley by a canal taking off from the Sea of Galilee at a cost of £9 (at 1939 rates) per dunum commanded. The total cost would be £2,700,000 if an impervious canal were used and £3 or £4 per dunum (£900,000 to £1,200,000) if an earthen canal were constructed. This canal would apparently draw water from the Yarmuk as well, the combined amount taken from the Sea of Galilee and the Yarmuk being 14.5 cubic meters per second or about 460,000,000 cubic meters per year. This is approximately equal to the entire annual flow of the Yarmuk River.

2. Irrigation of the Zor and Ghor lands by pumping from the Jordan is regarded by Ionides¹ as having only limited possibilities owing to the high cost of clearing the Zor

1. Op. cit., p. 258.

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lands and the expense involved in pumping water to the higher Ghor area. However, he points out that an area of 100,000 dunums (25,000 acres) had been leased for irrigation on the Kingdom of Jordan side near Allenby Bridge and that the work was 30 percent completed in 1939.

3. Under the pressure of the Arab refugee problem, the projects for the Yarmuk and its tributaries and projects involving the Jordan (described in D and E above) have been taken under active consideration. The Government of the Kingdom of Jordan has decided to appoint the British firm of Sir Murdoch MacDonald and Partners to make a preliminary survey which is expected to consume three months. In the meantime it has been estimated by Mr. G. Walpole, Director of Lands and Surveys to the Government of the Kingdom of Jordan, that the mean summer discharge of the Yarmuk (7.5 cubic meters per second) is capable of irrigating 105,000 dunums (26,250 acres). This would require 236,520,000 cubic meters of Yarmuk water a year, which is about equal to the entire share to which the Kingdom of Jordan is entitled at present. If the Jordan were also tapped, Walpole estimates that all the irrigable land on the east side of the Jordan between the Yarmuk and the Dead Sea could be supplied with water. This, according to his estimate, would be at least 393,750 dunums (98,438 acres) which would be sufficient land

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on which to settle 17,897 families or 89,485 persons at the rate of 5.5 acres a family of five persons.

VI. CONFLICTS BETWEEN THE HAYS PROJECT FOR THE USE OF THE WATERS OF THE JORDAN AND ITS TRIBUTARIES IN ISRAEL AND SIMILAR PROJECTS IN THE NEIGHBORING ARAB STATES

1. Lebanon. The building of a dam on the Hasbani at Ibl al-Saqi does not interfere with any actual or projected development schemes in Lebanon. It would interfere, however, with the existing water rights of the inhabitants of the area as guaranteed by the Anglo-French Agreements of February 3, 1922 and February 2, 1926 quoted above in Section I. It would also require the relocation of a number of families and construction of a main highway. The Banyas-Tel Hai canal also would have to pass through 1/2 kilometer of Lebanese territory.

2. Syria. Syria would be very little affected by the proposed irrigation and hydroelectric development plans of either Israel or the Kingdom of Jordan. The only respect in which Syria is involved in these is with regard to the canal from the Banyas River to Tal Hai, which must pass through Syria for a distance of 2 kilometers. The Muzayrib project draws its water entirely from Syrian tributaries of the Yarmuk and would thus not be affected by diversion of the Yarmuk waters.

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3. Israel. Israel would be the sole beneficiary of the upper Jordan waters without any compensation accruing to Syria or Lebanon in whose territories the two most important tributaries of the Jordan rise.

4. Kingdom of Jordan and Israel. The greatest conflict involved in these projects, and a very serious one, is that between Israel and the Kingdom of Jordan. If the entire water supply of the Jordan is consumed by Israel and half of the flow of the Yarmuk is diverted into the Sea of Galilee as envisaged under the recently-completed final version of the Hays report, the Kingdom of Jordan will suffer the following adverse affects:

a. It will be deprived of any opportunity to extend irrigation in its territories by use of the Galilee or the Jordan waters; at the same time it would be deprived of half of the Yarmuk waters, which could be used for the irrigation of land upon which refugees could be settled.

b. Areas on the east bank of the Jordan which are now irrigated by pumping from that river will be left with insufficient water supplies.

c. The Palestine Potash Company, in addition to a concession to exploit the mineral salts of the Dead Sea, has the right to employ for the purposes of its operation fresh water "from the Jordan or any convenient affluents to the

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Dead Sea and the River Jordan, . ."1 Any diversion of the Jordan which would adversely affect the operations of this concession would affect also the interests of the Kingdom of Jordan, which under clauses 10 (i) and 13 of the concession is entitled to a 5 percent royalty on the value of various products sold share in the profits of the company.

VII. THE PRESENT LEGAL POSITION
OF THE VARIOUS AGREEMENTS FOR THE USE OF THE
WATERS OF THE JORDAN AND ITS TRIBUTARIES

The status of the agreements entered into by the French and the British Governments regarding the waters of the Jordan and its tributaries is of great importance in the consideration of this problem. The Prime Minister of Syria, in a conversation with George Wadsworth on July 31, 1944 stated that Syria would recognize all of the international agreements entered into by France in Syria's name and that any modification would be made not by unilateral action, but by common accord through negotiation.² It is assumed that Lebanon has made a similar undertaking. Transjordan (then so called), in Article 8 of the Anglo-Transjordan treaty

1. See text of concession in the Palestine Official Gazette, June 1, 1930.

2. D-461, Beirut, August 3, 1944, "Establishment of Diplomatic Relations between Syria and the USSR." CONFIDENTIAL

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of March 22, 1946,¹ undertook to carry out similar international obligations and agreements entered into on Transjordan's behalf by Britain during the period of the mandate. The case of the ex-mandated territory of Palestine is more complicated. Israel has not indicated her willingness to assume the international obligations entered into on behalf of Palestine by the High Commissioner under the mandate. Because Israel is not recognized by the neighboring Arab states, she has no treaties or diplomatic dealings with them. The only action Israel has taken along with these states that can be said to affect the problem of water rights has been to initial the Lausanne Protocol of May 12, 1949 accepting the UN partition boundaries as a basis for further discussion of the final delimitation of the boundaries of Israel. Arab Palestine, in effect, presents a vacuum since it has no government other than a temporary administration under Jordanian occupation, though it does not form a part of the Kingdom of Jordan.

VIII. RECOMMENDATIONS FOR EQUITABLE DISTRIBUTION OF WATER RIGHTS TO THE JORDAN AND ITS TRIBUTARIES AMONG ISRAEL, SYRIA, LEBANON, AND THE KINGDOM OF JORDAN

A. Lebanon

Since the Hays plan requires the building of a dam and a reservoir on the upper Hasbani in Lebanese territory,

1. Transjordan, Official Gazette, June 17, 1946.

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it will be necessary for Israel and Lebanon to come to some kind of an agreement on this point. It is unlikely that Lebanon would consent unless it received a suitable quid pro quo. Israel would probably desire to have Lebanon cede the upper Hasbani as far as Ibl al-Saqi. This would be difficult to accomplish, however, since, apart from the probable violent reaction of Lebanese public opinion, there is an important obstacle in the Lebanese Constitution (Article 2), which expressly states that "No part of Lebanese territory may be alienated or ceded." There have been indications that Lebanon would like to acquire Western Galilee, which is now occupied by Israel although it is outside the area allotted to Israel by the UN partition plan of November 29, 1947. If the UN is willing to accept the fait accompli of Israeli occupation of this area and permit Israel to cede part of Western Galilee to Lebanon in return for the right to erect the necessary installations on the upper Hasbani and run a section of the Banyas-Tel Hai Canal across a short interval of Lebanese territory, the problem might be settled in this way.

B. Syria

It is suggested that in return for the right to run the Banyas-Tel Hai Canal across 2 kilometers of Syrian territory, or the cession to Israel of the small area crossed by this canal, Israel would cede to Syria compensating territory

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which she holds on the east shore of the Sea of Galilee and which was accorded to Israel by the UN Partition Plan of November 29, 1947.

C. Kingdom of Jordan (Including Arab Palestine)

The various programs for the use of the Jordan waters by Israel and the Kingdom of Jordan are so conflicting that in the interest of facing the realities of the situation a major revision of the claims of these two parties to the waters of the Yarmuk and the Jordan seems mandatory. This is all the more necessary because of the Arab refugee problem and the division of ex-mandated Palestine into the two areas of Israel and Arab Palestine, neither of which situations existed at the time the Hays plan was drawn up. Since the Kingdom of Jordan is expected to play an important part in the resettlement of these Arab refugees, it is clear that the Jordanian position must be given more consideration than it has received in the Hays report.

To summarize briefly the position of the Hays plan in this respect, Israel would fall heir to all of the waters of the upper Jordan and half of the flow of the Yarmuk or over three-fourths of the total annual discharge of both rivers. This would leave the Kingdom of Jordan not only with insufficient water for maximum irrigation of the east bank of the Jordan, but also with inadequate supplies for the exploitation of irrigable lands along the lower Jordan.

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If the Kingdom of Jordan is to settle the maximum number of refugees, it will need water in an amount at least as great as the entire flow of the Yarmuk. It would obviously be tempting to suggest that the entire flow of the Jordan be allotted to Israel and the entire output of the Yarmuk be granted to the Kingdom of Jordan. The difficulty with this approach is that it would result in the shrinking of the Sea of Galilee to a point where it would have no outlet and would probably become saline, as has the Dead Sea. This was foreseen in the Hays report and was to have been remedied by directing into the Sea of Galilee half the flow of the Yarmuk.

It seems questionable whether under international law, and particularly in view of the pressing problem of the resettlement of Arab refugees, Israel's claim to all this water can be justified. The conclusion seems inescapable that Israeli plans for use of the Jordan and the Yarmuk waters will have to be whittled down so as to take better account of the need for resettling Arab refugees, for whose situation Israel itself is in part responsible. This conclusion, of course, is apart from the presumably legitimate claim of the Kingdom of Jordan to half the waters of the Yarmuk and half the waters of the Jordan as they issue from the Sea of Galilee. If, as it is assumed, Arab Palestine is to be

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incorporated into the Kingdom of Jordan, the latter's claim to half the Jordan waters would be strengthened since in that event considerably more of the Jordan's course (about 40 miles in a straight line) would be entirely within the Kingdom of Jordan than would be the case with Israel (about 27 miles in a straight line) while the Jordan would form the common border between the two states for a distance of only about 19 miles in a straight line. This is assuming that the northern border between Israel and Jordanian-annexed Arab Palestine would be just north of the proposed dam site at Wadi Malih, or approximately at the same point where the Israeli-Arab border was drawn by the UN on November 29, 1947. The Wadi Malih dam should be in Jordanian territory.

On this basis the apportionment of the Jordan and the Yarmuk waters would be as follows:

1. Israel would use the entire flow of the Jordan River before it reaches the Sea of Galilee. This flow, as measured at Jisr Banat Ya'qub, would amount to an average of about 625,000,000 cubic meters per year.
2. The Kingdom of Jordan would take half the annual flow of the Jordan, or about 230,000,000 cubic meters per year, which would be impounded in the present (or an enlarged) Palestine Electric Company reservoir at Jisr al-Majami'. A dam would be constructed at the point where the Yarmuk

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enters the Jordan Valley. This dam, as envisaged in the Hays plan,¹ would convey the other half of the Yarmuk waters to the Sea of Galilee by means of a diversion canal.

3. Of the 230,000,000 cubic meters a year of Yarmuk water thus diverted into the Sea of Galilee, it is estimated that 110,000,000 cubic meters would be lost through evaporation. The remainder of 120,000,000 cubic meters per year would escape from the Sea of Galilee, thus preventing that body of water from excessive shrinkage and from salinization; it would be impounded, along with half the Yarmuk waters, in the present or an enlarged reservoir at Jisr al-Majami'. If it should prove impossible to store this amount of water at Jisr al-Majami', there should be examined the possibility of drawing off some of the Yarmuk waters by the construction of an irrigation canal taking off from the same diversion dam as the Yarmuk-Galilee canal. The Kingdom of Jordan would thus obtain about 350,000,000 cubic meters of water per year as against 625,000,000 cubic meters for Israel.

4. This proposal would have the advantage of both keeping the Sea of Galilee fresh and using it as a reservoir for the storage of Yarmuk waters to be used by the Kingdom of Jordan. Although 110,000,000 cubic meters of water a year would be lost by evaporation, it would be impossible to build a dam

1. PP. 100-101.

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on the Yarmuk large enough to conserve all of the Yarmuk waters for irrigating the east bank of the Jordan. In addition, the flow from the Sea of Galilee might be sufficient for the Palestine Electric Company's plant at Tel Or (near Jisr al-Majami') to produce some electricity. In addition, there should be investigated the possibility of erecting a hydroelectric plant at the site of the Yarmuk diversion dam, as suggested by the Hays report.¹ This would help compensate for the loss of electricity from the plant at Tel Or.

5. This proposal would eliminate the canal from the Jordan to the Baysan plain as proposed in the Hays report.² It would eliminate also the Hays proposal³ for a pumping plant on the Sea of Galilee to provide water for the irrigation of the Israeli area between the Sea of Galilee and the Yarmuk, unless Israel were willing to allow sufficient water to escape from the upper Jordan into the Sea of Galilee to compensate for the water drawn from the Sea of Galilee by these two projects.

6. The dam at Wadi Malih should be built to provide water for the irrigation of the foothills of Jordanian-controlled Arab Palestine west of Jericho. This dam, according to Hays, should add an additional 165,000,000 cubic meters of water to the resources of the Kingdom of Jordan.

1. PP. 102-103.

2. P. 102.

3. Idem.

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7. Thus the total water available to Israel from the Jordan and its tributaries would be about 625,000,000 cubic meters a year or 110,000,000 cubic meters more than that available to the Kingdom of Jordan, which would have 515,000,000 cubic meters a year.

8. As compensation to the Kingdom of Jordan for the differential of 110,000,000 cubic meters a year it is suggested that Israel make the following concessions in the interest of making an equitable settlement of water rights and solving the Arab Refugee problem:

a. Fully compensate the Palestine Electric Company for losses sustained through the drawing-off of the Jordan and the Yarmuk waters.

b. Cede to the Kingdom of Jordan the small area required for the dam on the Yarmuk and the diversion canal to the Sea of Galilee.

c. Guarantee to the Kingdom of Jordan that the latter's supply of water from the Sea of Galilee will not be interfered with.

d. Cede to the Kingdom of Jordan the small area required by the reservoir for impounding the Jordan and the Yarmuk waters at Tel Or near Jisr al-Majami'. This area would be vital to the Kingdom of Jordan but of little importance to Israel.

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e. If necessary, the UN could compensate Israel for the territory thus ceded by recognizing its right to other areas now occupied by Israel but not granted to it under the UN partition plan of November 29, 1947.

IX. SUGGESTED AGREEMENTS REQUIRED
BETWEEN ISRAEL AND THE NEIGHBORING
ARAB STATES WITH REGARD TO WATER RIGHTS

In order for this problem to be regulated on a firm and satisfactory basis that the following actions would be necessary:

1. A series of bilateral agreements between Israel on the one hand and Syria and Lebanon on the other, reaffirming the relevant principles of the Anglo-French Agreements of December 23, 1920, February 3, 1922, and February 2, 1926 and making any changes necessary in the light of subsequent developments. It is suggested that these agreements be bilateral rather than multilateral owing to the difficulty which experience has shown attends the making of agreements of the latter type between Israel and the Arab States.

2. An agreement between Israel and the Kingdom of Jordan covering the utilization of the waters of the Yarmuk and the Jordan by both parties. There is no precedent here as there is in the case of Syria and Lebanon on the one hand and Israel on the other, since the Kingdom of Jordan and what is now Israel were until March 22, 1946, and May 15, 1948 respectively

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both a part of the same British-mandated territory and under the authority of a single British High Commissioner. Before such an agreement could be arrived at, the position of Arab Palestine would have to be determined. Any agreement arrived at should compromise as equitably as possible between the needs of Israel's rapidly-growing population and the necessity of settling as large a number as possible of Arab refugees in the Kingdom of Jordan.

3. An agreement on water rights between Syria and the Kingdom of Jordan. This might take the form of a reaffirmation of the agreements previously entered upon their behalf by the French and the British-mandated regimes respectively.

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APPENDIX A

PERTINENT EXTRACTS FROM THE
PALESTINE ELECTRIC CONCESSION, MARCH 5, 1926¹

Part I, Clause 3: The High Commissioner hereby grants to the Company, for the period of 70 years computed from the day of the date hereof an exclusive Concession for the utilization (a) of such of the waters of the River Jordan and its basin including the Yarmuk River and all other affluents of the River Jordan and its basin as are now or shall hereafter be brought within the control or supervision of the High Commissioner and (b) of such of the waters of those parts of the River Jordan and its basin together with the affluents thereof including the River Yarmuk and its affluents outside the boundaries of the territories under the control of the High Commissioner as shall under the Anglo-French Convention dated 23rd December 1920 or otherwise however have been or be determined to be available for utilization for the purposes of Palestine and/or Transjordan, for the purpose of generating by power derived from such waters and supplying and distributing within the Concession Area electrical energy: and for those purposes or any of them to erect a power house near Jisr el-Majami and to employ and use Lake Tiberias as a reservoir

1. From the Palestine Official Gazette, March 7, 1926.

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for the storage of water in connection therewith and to erect any other power house or power houses (with the corresponding reservoirs if necessary) which the company may think fit to erect...

Clause 8: It shall be lawful for the company to dam up the water in Lake Tiberias to a maximum level and to draw off the water to a minimum level as may be agreed upon between the High Commissioner and the Company, and to conduct the water from Lake Tiberias by means of a canal or canals to the said power house or other power houses: and the Company shall as soon as is practicable and with all expedition make good all damage done and restore all roads, bridges, drains, culverts and watercourses which may be disturbed or interfered with in the execution by the Company of the works incidental to this Concession and so that such restoration shall be effected and proceed so far as may be contemporaneously with the progress of the said works...

Clause 9: It shall be lawful for the Company to divert and use the waters of the Yarmuk River and its affluents either into the canal or canals mentioned in Clause 8 hereof or into Lake Tiberias by means of a dam and a canal beginning near El Hamma and ending in such canal or canals as aforesaid or Lake Tiberias, and to use the fall of such water

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for the production of electrical energy if the Company shall so require, and to divert and use the waters of the Yarmuk River and its affluents if and where necessary for the purposes of the due execution of this Concession.

Clause 11: When by reason of the construction or maintenance of any works of the Company the water supply of any owner of land or user of water within the Concession Area is diminished or cut off the Company shall supply such owner or user with such an amount of water as shall be necessary for his daily use for drinking and other domestic purposes and for his animals and for the irrigation of such parts of his lands as may be irrigated and planted with trees or other permanent plantations at the date hereof. The Company shall further supply such owner or user with such an amount of water as shall be necessary for the irrigation of such part of his land as has been irrigated and planted with trees or other permanent plantations since the date hereof and before the date of approval by the High Commissioner of any works of the Company by reason of which the supply of water has been diminished or cut off, or in default of supplying such amount of water shall pay him compensation. The Company shall be liable to pay compensation to any such owner or user who by reason of the diminution or cessation of the water supply is unable to grow vegetables or other annual

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plants or crops or suffers loss by reason of the damage to or destruction of such plants or crops already planted on land which at the date of the approval by the High Commissioner of any works by reason of which the supply of water diminishes or ceases he has been accustomed to plant with such plants or crops: Provided that if any dispute shall arise between such owner or user and the Company regarding the amount of water so necessary or the compensation so payable, such dispute shall be referred to a single arbitrator, appointed by the High Commissioner and the award of such arbitrator shall be final.

Clause 11A: The High Commissioner shall procure legislation to be enacted making unlawful the use of such waters of the Jordan and its basin including the Yarmuk and all other affluents of the Jordan and its basin as may be now or shall hereafter be brought into the Concession Area in such a manner as to reduce the quantity of water available to the Company below the quantity required for the generation of electrical energy by the Company's works from time to time approved by the High Commissioner: Provided that no order under such legislation shall be issued save in application of the Company: Provided also that no such order shall deprive any owner of land or user of water of such an amount of water as shall be necessary for his daily use for drinking

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and other domestic purposes and for his animals and for the irrigation of any land which he has irrigated and planted with trees or other permanent plantations at the date hereof;

If in consequence of any order made as aforesaid under such legislation the owner of land or user of water at a place up the stream above any works of the Company approved by the High Commissioner is prevented from using the quantity of what which he has been accustomed to use before the approval of such works, the Company shall be liable to pay him compensation for any loss caused by such diminution or cessation of the supply of water in accordance with the provisions of Clause 11 hereof.

Clause 52: These presents shall be interpreted and construed according to the laws of England and shall be given effect to accordingly.

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APPENDIX B

PERTINENT EXTRACTS FROM THE DEAD SEA SALTS
CONCESSION CONCLUDED BETWEEN THE HIGH COMMISSIONER
FOR PALESTINE AND THE PALESTINE POTASH COMPANY¹

Clause 2: The Government hereby grants and denies to the Company...Thirdly - the right to obtain fresh water required for the production of salt drinking, washing or sanitary purposes and the general purposes of the Undertaking and the Company's employees (subject to existing rights of the user) from the River Jordan or any convenient affluents to the Dead Sea and the River Jordan (but so that water power must not be used to generate electricity).

Clause 10 (1): The Company shall pay to the government a royalty equal to 5 percent of the value...of potassium chloride bromine and magnesium chloride produced and sold.

Clause 13: Provides the Company shall in each financial year pay the government a share in the profits.⁷

1. Text in the Palestine Official Gazette, June 1, 1930.

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